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JUL 25 2006

Serial No. 10/056,647

Docket No. 10015567-1

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) A fuel cartridge, comprising:
a fuel reservoir;
a reaction chamber;
an open region that connects the fuel reservoir to the reaction chamber;
and
a passive structure located within the open region adapted to resist fluid flow from the fuel reservoir to the reaction chamber.
2. (Original) A fuel cartridge as claimed in claim 1, further comprising:
a fuel containing substance within the fuel reservoir.
3. (Original) A fuel cartridge as claimed in claim 2, wherein the fuel containing substance comprises sodium borohydride.
4. (Original) A fuel cartridge as claimed in claim 1, wherein the reaction chamber includes an inlet operably connected to the fuel reservoir and a gas outlet.
5. (Previously Presented) A fuel cartridge as claimed in claim 4, further comprising:
a byproduct reservoir including a liquid inlet;
wherein the reaction chamber includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

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6. (Original) A fuel cartridge as claimed in claim 5, further comprising:
a substantially gas permeable/substantially liquid impermeable structure separating the reaction chamber liquid outlet from the reaction chamber gas outlet.
7. (Original) A fuel cartridge as claimed in claim 1, wherein the open region is defined by a tubular member.
8. (Original) A fuel cartridge as claimed in claim 1, wherein the passive structure creates capillary forces that resist fluid flow.
9. (Original) A fuel cartridge as claimed in claim 1, wherein the passive structure comprises a porous structure.
10. (Withdrawn) A fuel cartridge as claimed in claim 1, wherein the passive structure comprises a plurality of capillaries.
11. (Withdrawn) A fuel cartridge as claimed in claim 10, wherein the plurality of capillaries are substantially axially aligned with one another.
12. (Previously Presented) A fuel cartridge, comprising:
a fuel reservoir including a fuel containing substance;
a reaction chamber including an inlet, a gas outlet, a catalyst and a substantially gas permeable/substantially liquid impermeable structure separating the inlet from the gas outlet;
an open region that connects the fuel reservoir to the reaction chamber;
and
a passive structure located within the open region adapted to create capillary forces to resist flow of the fuel containing substance from the fuel reservoir to the reaction chamber.

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13. (Previously Presented) A fuel cartridge as claimed in claim 12, further comprising:

a byproduct reservoir including a liquid inlet;
wherein the reaction chamber includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

14. (Original) A fuel cartridge as claimed in claim 12, wherein the fuel containing substance comprises sodium borohydride.

15. (Original) A fuel cartridge as claimed in claim 12, wherein the passive structure comprises a porous structure.

16. (Withdrawn) A fuel cartridge as claimed in claim 12, wherein the passive structure comprises a plurality of capillaries.

17. (Withdrawn) A fuel cartridge as claimed in claim 16, wherein the plurality of capillaries are substantially axially aligned with one another.

18. (Currently Amended) A fuel cartridge, comprising:
a fuel reservoir;
a reaction chamber;
an open region that connects the fuel reservoir to the reaction chamber;
and

control means, associated with the open region, for passively resisting fluid flow from the fuel reservoir to the reaction chamber and permitting fluid flow ~~from~~ from the fuel reservoir to the reaction chamber in response to the presence of a predetermined pressure gradient across the control means.

19. (Original) A fuel cartridge as claimed in claim 18, further comprising:
a fuel containing substance within the fuel reservoir.

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20. (Original) A fuel cartridge as claimed in claim 18, wherein the reaction chamber includes an inlet operably connected to the fuel reservoir and a gas outlet.

21. (Previously Presented) A fuel cartridge as claimed in claim 20, further comprising:

a byproduct reservoir including a liquid inlet;

wherein the reaction chamber includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

22. (Currently Amended) A fuel cartridge, comprising:

a fuel reservoir; and

a reaction chamber including a catalyst, an inlet operably connected to the fuel reservoir, a gas outlet, ~~a liquid outlet that is not~~ means, that is not in fluid communication with the fuel reservoir, for letting liquid out of the reaction chamber, and a substantially gas permeable/substantially liquid impermeable structure separating the inlet from the gas outlet.

23. (Original) A fuel cartridge as claimed in claim 22, further comprising:

a fuel containing substance within the fuel reservoir.

24. (Original) A fuel cartridge as claimed in claim 23, wherein the fuel containing substance comprises sodium borohydride.

25. (Currently Amended) A fuel cartridge as claimed in claim 22, further comprising:

a byproduct reservoir including a liquid inlet;

wherein the reaction chamber ~~liquid outlet~~ means for letting liquid out of the reaction chamber is operably connected to the byproduct reservoir liquid inlet.

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26. (Original) A fuel cartridge as claimed in claim 22, wherein the reaction chamber comprises an external housing and the substantially gas permeable/substantially liquid impermeable structure comprises an enclosed structure, an inlet operably connected to the fuel reservoir, and a liquid outlet.

27. (Previously Presented) A fuel cartridge as claimed in claim 26, wherein the reaction chamber external housing includes an inner surface, the enclosed substantially gas permeable/substantially liquid impermeable structure includes an outer surface, and a space is defined between the inner surface of the reaction chamber external housing and the outer surface of the enclosed substantially gas permeable/substantially liquid impermeable structure that is in communication with the reaction chamber gas outlet.

28. (Original) A fuel cartridge as claimed in claim 22, wherein the substantially gas permeable/substantially liquid impermeable structure comprises a porous hydrophobic membrane structure.

29. (Original) A fuel cartridge as claimed in claim 22, wherein the catalyst comprises a plurality of porous elements coated with catalyst material.

30. (Original) A fuel cartridge as claimed in claim 22, wherein the catalyst comprises a transition metal.

31. (Currently Amended) A reaction chamber for use with at least first and second reactants, the reaction chamber comprising:

an external housing defining a first reactant inlet, a liquid outlet and a gas outlet; and

~~a substantially gas permeable/substantially liquid impermeable structure~~
an internal housing that is located within the external housing that separates the first reactant inlet and the liquid outlet from the gas outlet, is formed at least partially from a substantially gas permeable/substantially liquid impermeable material, and includes an

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inlet operably connected to the external housing first reactant inlet and a liquid outlet operably connected to the external housing liquid outlet.

32. (Canceled)

33. (Currently Amended) A reaction chamber as claimed in ~~claim 32~~ claim 31, wherein the second reactant is stored within the internal housing.

34. (Currently Amended) A reaction chamber as claimed in ~~claim 32~~ claim 31, wherein the external housing includes an inner surface, the internal housing includes an external surface, and a space is defined between the external housing inner surface and internal housing external surface that is in communication with the external housing gas outlet.

35. (Currently Amended) A reaction chamber as claimed in claim 31, wherein the ~~substantially gas permeable/substantially liquid impermeable structure comprises~~ internal housing is formed at least partially from a porous hydrophobic membrane material.

36-52. (Canceled)

53. (Previously Presented) A fuel cartridge as claimed in claim 1, wherein the passive structure is configured to prevent fluid from entering the reaction chamber in the absence of a predetermined pressure gradient across the passive structure.

54. (Previously Presented) A fuel cartridge as claimed in claim 12, wherein the passive structure is configured to prevent fluid from entering the reaction chamber in the absence of a predetermined pressure gradient across the passive structure.

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55. (Currently Amended) A fuel cartridge, comprising:
a fuel reservoir;
a reaction chamber defining an interior surface, a fuel inlet and ~~a single~~
only one gas outlet;
an enclosed substantially gas permeable/substantially liquid impermeable structure defining an interior operably connected to the fuel inlet and an exterior surface and located within the reaction chamber such that a gap extends around the exterior surface from the exterior surface to the interior surface of the reaction chamber and the gap is in gaseous communication with the ~~single~~ only one gas outlet of the reaction chamber; and
a catalyst located within the interior of the enclosed substantially gas permeable/substantially liquid impermeable structure.

56. (Previously Presented) A fuel cartridge as claimed in claim 55, further comprising:
a fuel containing substance within the fuel reservoir.

57. (Previously Presented) A fuel cartridge as claimed in claim 56, wherein the fuel containing substance comprises sodium borohydride.

58. (Previously Presented) A fuel cartridge as claimed in claim 55, further comprising:
a byproduct reservoir including a liquid inlet;
wherein the enclosed substantially gas permeable/substantially liquid impermeable structure includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

59. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the fuel reservoir and byproduct reservoir comprises separate structural elements.

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60. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the substantially gas permeable/substantially liquid impermeable structure comprises a porous hydrophobic membrane structure.

61. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the catalyst comprises a plurality of porous elements coated with catalyst material.

62. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the catalyst comprises a transition metal.